
IM-1 MILLION
IN A

ATTENTION ALL COMPUTER OWNERS BEWARE OF THE STATIC BUG CAUSE WHEN IT BITES THE COMPUTER DIES!

THIS IS A ROUGH WAY TO START OUR SECOND LETTER OF THE YEAR BUT IT IS THE SEASON TO WATCH OUT FOR "STATIC". THIS CAN CAUSE AS MUCH DAMAGE AS LIGHTENING OR POWER SURGES. HERE ARE A FEW HINTS TO FOLLOW. THE FIRST IS THE BEST.

1. GET MORE HUMIDITY IN THE ROOM WHERE THE COMPUTER IS. THIS CAN BE DONE WITH AN INEXPENSIVE COLD AIR HUMIDIFIER. IT WOULD BE NICE TO DO THE WHOLE HOUSE IF POSSIBLE.
2. NEXT IS TO BE SURE AND TOUCH A METAL FRAME TO GET RID OF THE STATIC BEFORE YOU TOUCH THE MACHINE, ESPECIALLY BEFORE CHANGING THE GAME CARTRIDGES.
3. PUT THE MACHINE IN A ROOM WITH NO CARPET.

ANY OF THE ABOVE WILL BE BETTER THAN NOTHING. STATIC WILL PROBABLY BLOW YOUR BASIC CARTRIDGE AND THEY COST \$99.95 RETAIL TO REPLACE. HOPE THIS KEEPS ANYBODY FROM DOING ANY DAMAGE TO THEIR MACHINE.

NOW THAT I HAVE YOUR ATTENTION ON WITH THE GOOD STUFF. IN THIS ISSUE WE ARE GOING TO TRY AND REPRINT ALL OF THE HARDWARE AND SOFTWARE PROBLEMS AND HINTS THAT HAVE BEEN IN THE OLD NEWSLETTERS. THIS IS FOR ALL OF THE NEW PEOPLE OUT THERE. READ ON.

SO EVERYBODY WILL KNOW AND WON'T GET WORRIED ABOUT THEIR NEWSLETTER LET ME GIVE OUR TIMING FOR PRINTING AND MAILING. WE WILL HAVE A DEADLINE OF THE 28TH OF THE MONTH FOR ANYBODY THAT WANTS TO GET ANYTHING PUBLISHED. AROUND THE 23RD IS WHEN WE WANT TO HAVE OUR PROOF COPY AT THE PRINTERS AND IT TAKES THEM 2 TO 3 DAYS. WE WILL HAVE THEN ALL READY TO GO BY THE FIRST OF THE MONTH AND THEN WE START MAILING THEM. WE SEND BULK RATE SO THIS MEANS IT TAKES 7 TO 10 DAYS NORMALLY FOR DELIVERY. SO IF YOU HAVE NOT GOTTEN IT BY THE 15TH OF THE MONTH SOMETHING MIGHT BE WRONG. JUST DROP US A POST CARD AND ANOTHER ONE WILL BE SENT OUT THE NEXT DAY.

ALL OF THE OLD HINTS

1. DIM STATEMENTS. THE MANUALS SAY THE MAXIMUM IS 99 BUT IT IS ACTUALLY 999. EXAMPLE: DIM A(200),B(150,50),C(1,800) ARE GOOD. IT ALSO SAYS THAT DIM C*(99) IS THE MAX. BUT THIS IS NOT TRUE. YOU CAN USE A VALUE ABOVE 99 IN STRING VARIABLES BUT IT WILL CAUSE PROBLEMS WITH THE PRINT. EXAMPLE: 10 DIM C*(255)
 20 PRINT C*(0);C*(55);
 ;C*(110);C*(165);
 C*(220)

THE REASON FOR BREAKING THE DIM DOWN LIKE THIS IS BECAUSE APPARENTLY THE MACHINE ONLY LOOKS AT THE LAST 2 DIGITS OF THE DIM SIZE TO DETERMINE THE MAX SIZE, SO YOU HAVE TO BREAK THE STRING DOWN INTO INCREMENTS EQUAL TO THE LAST 2 DIGITS.

2. EXPONENTIAL...IF YOU HAVE A FRACTION IT CAN CAUSE AN OVERFLOW OR A WRONG ANSWER. EXAMPLE::: X^Y IF X=1.001 AND Y=3 WILL CAUSE A WRONG ANSWER AND X=1.001 & Y=4 WILL CAUSE AN ARITHMETIC OVERFLOW. TO GET AROUND THIS YOU NEED TO JUST MULTIPLY X BY ITSELF Y TIMES.

3. TAB FUNCTION WHEN USED WITH STRING VARIABLES WILL NOT WORK PROPERLY IF THE STRING VARIABLE IS NOT FILLED WITH PRINTABLE CHARACTERS. THE BEST WAY AROUND THIS IS TO GET THE STRING TO SPACES BEFORE YOU PUT YOUR DATA IN IT. EXAMPLE C3=" "

4. FORMAT DEFINITION...IF YOU HAVE 'TEST', MIXED WITH A MASK DEFINITION (THE MASK IS THE # SYMBOLS), THERE MUST BE A SPACE BETWEEN THE LAST LETTER OF 'TEXT' AND THE FIRST # SYMBOL OF A MASK. EXAMPLE: 'FIRST #####' IS OK. 'FIRST#####' IS BAD. TEXT CAN FOLLOW DIRECTLY AFTER A MASK '#####FIRST'. MASK SIZE IS 8 INTERGER PLACES '#####.####'. YOU MUST HAVE ONE SPACE BETWEEN MASK'S. '#### #'

AFTER EXECUTING A 'PRINT USING' STATEMENT THE CURSOR ALWAYS IS PLACED AT THE BEGINNING OF THE NEXT LINE EVEN IF YOU PUT A ';' AT THE END. THIS CAN BE OVERCOME BY PUTTING ALL INFO IN ONE 'PRINT' STATEMENT.

WHEN PRINTING STRINGS IN A PRINT USING STATEMENT, SOME PROBLEMS OCCUR WHEN THE NUMBER OF NON NULL CHARACTERS OF THE STRING ARE LESS THAN THE MASK SIZE. EXAMPLE::

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10:####
20 PRINT USING 10,"AB"
IT WILL PRINT   AB
20 PRINT USING 10,"AB   "
```

THIS WILL PRINT AB

5. ORANGE SCREEN OR GARBAGE WHEN LOADING FROM TAPE CAN BE CAUSED BY TOO LONG OF A LEADER. TRY USING LEADERLESS TAPE OR WAIT 2 OR 3 SECONDS BEFORE HITTING RETURN. YOU CAN ALSO TURN UP THE VOLUME ON THE TAPE UNIT AND LISTEN FOR THE TONE AND THEN HIT 'RETURN'.

6. BUZZ FROM SPEAKER AFTER LOADING TAPE. USE A 'POKE 24578,54' IN THE FIRST LINE OF THE PROGRAM.

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## SEVERAL QUESTIONS FROM CHARLES CONSTANT

1. WHEN MACHINE FIRST TURNED ON THE SCREEN IS ORANGE WITH LIGHT BLUE CURSOR AND THE POKE 8193,60 DOES NOT APPEAR TO DO ANYTHING. 'THE ORANGE SCREEN SOUNDS LIKE THE IM-1 IS OUT OF ADJUSTMENT. THIS IS WHAT IS PROBABLY EFFECTING YOUR POKE COMMAND ALSO.

2. ON PAGE 16 OF THE BASIC REFERENCE MANUAL THE CURSOR LOCATE PROGRAM WILL NOT WORK.

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HERE IS A SIMPLE PROGRAM USING THAT ROUTINE::
10 CALL 17046
20 GOTO1000
100 A=L*32+P+512
110 POKE 40960,INT(A/256)
120 POKE 40961,A-INT(A/256)*256
130 RETURN
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1000 INPUT "ROW & COLUMN",L,P
1010 GOSUB 100
1015 CALL 17046
1020 GOTO 1000

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REMEMBER WITH THIS ROUTINE THE LINES ON THE SCREEN ARE NUMBERED 0 TO 15 AND THE COLUMNS ARE NUMBERED 0 TO 31.

4. WILL THE IM-1 SEARCH THE TAPE FOR DATA LIKE THE VIC-20? !!SEE THE PROGRAM SECTION OF THE NEWSLETTER, THERE YOU WILL FIND A PROGRAM FROM THE TECH REF MANUAL WHICH A CHANGED TO ALLOW THE TAPE TO BE USED FOR DATA STORAGE. IT IS A SIMPLE PROGRAM WHICH EVERYBODY SHOULD BE ABLE TO ADAPT TO THEIR PROGRAMS.

5. CHARLES ALSO HAD PROBLEMS WITH SOME EXAMPLE PROGRAMS IN THE TECH REF MANUAL. THESE PROGRAMS WERE USED TO STORE FRONT SCREEN PICTURES ON TAPE. I HAVE KEYED IN ALL OF THEM AND CANNOT FIND ANY PROBLEMS WITH THEM. BELOW IS A LISTING OF THEM FOR THE OTHER MEMBERS.

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10 CU=0: GOSUB 500: REM MOVE CURSOR TO 0
20 FOR I=1 TO 16: PRINT SPC(32);: NEXT I: REM ALL GREEN SCREEN
30 CU=256: GOSUB 500
40 PRINT SPC(9);"THIS IS A TEST"
50 FOR I=0 TO 31: POKE I,191:NEXT I:REM LINE OF RED SQUARES
60 FOR I=470 TO 511: POKEI,255:NEXT I:REM LINE OF ORANGE SQUARES
70 CU=512: GOSUB 500: REM MOVE CURSOR BACK TO SCREEN
80 END
500 POKE 40960, INT(CU/256):POKE 40961,CU-(INT(CU/256)*256)
510 RETURN
'RUN' THE PROGRAM AND IT WILL BUILD A FRONT SCREEN IN MEMORY AT
0 TO 511. THEN 'POKE 41452,255' TO CHANGE FRONT SCREEN FLAG.
DO 'CSAVE' THEN DO A 'CLOAD'.

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THE NEXT 2 PROGRAMS ARE USED TO BUILD FRONT SCREENS ON TAPE THEN LOAD THEM WHILE RUNNING A PROGRAM.

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10 CALL 17046: REM CLEAR SCREEN
20 SHAPE=15: REM CREATE SCREEN THAT IS COLORED HLIN
30 FOR I=0 TO 15
40 COLOR=I: HLIN 0,31,I:NEXT I
50 GOSUB 500: REM GOTO ROUTINE TO SAVE SCREEN
70 CALL 17046: REM CLEAR SCREEN
80 FOR I=0 TO 31: REM CREATE SCREEN THAT IS COLORED VLIN
90 COLOR=I:VLIN 0,15,I:NEXT I
100 GOSUB 500
110 END
500 POKE 41446,164: POKE41447,1: REM CHANGE END OF MEMORY
    POINTER TOO 41985(HEX A401)
510 CALL 34040: CALL 3413B: CALL 34061: REM MOTOR ON, SAVE, OFF
520 POKE 41446,191: POKE 41447,255: REM CORRECT END OF MEMORY
530 RETURN

```

ENTER THE PROGRAM, PLACE TAPE IN AND PRESS PLAY. RUN THE PROGRAM AND IT WILL SAVE 2 SCREENS ON TAPE AND STOP.

THE SECOND PART OF THE PROGRAM WILL LOAD THE SCREEN BACK IN.

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10 GOSUB 500: REM GOTO ROUTINE TO READ FIRST SCREEN
20 POKE 40960,0: INPUT R: REM MOVE CURSOR & WAIT FOR 'RETURN'
30 GOSUB 500: REM GO READ SECOND SCREEN
40 END
500 POKE 41446,164: POKE 41447,1: REM CHANGE END OF MEM POINTER
510 A=PEEK(41984): B=PEEK(41985): REM SAVE TRUE END OF PROGRAM
520 CALL 34040: CALL 34225: CALL 34261: REM READ TAPE
530 POKE 41446,191: POKE 41447,255: REM CHANGE MEMORY END POINTER
540 POKE 41984,A: POKE 41985,B: REM CHANGE END PROG POINTER
550 RETURN

```

AFTER ENTERING THE PROGRAM PUT TAPE IN UNIT AND 'RUN'. IT WILL LOAD FIRST SCREEN THEN WAIT FOR 'RETURN' TO LOAD SECOND SCREEN. I HAVE PRINTED THESE PROGRAMS TO ALLOW OTHER MEMBERS THAT DON'T HAVE THE TECH REF MANUAL TO GET THE USE OF THE PROGRAMS ALSO.

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# **MACHINE PROBLEMS SENT IN BY J H RANDALL**

I RECEIVED THE FIRST ISSUE OF THE NEWSLETTER AND AM PLEASED WITH ITS CONTENTS AND WHAT IS PROPOSED FOR COMMING ISSUES. ALSO THERE IS THIS PROBLEM I HAVE RUN ACROSS (AND MAYBE OTHERS HAVE, TOO). I WAS TRYING THIS:

```

10 INPUT X
20 IF X=0 THEN PRINT "ZERO": STOP
30 PRINT X, X^X, X/X, X^X
WHEN X=100 THE COMPUTER PRINTED 100 10000 1 1
WITH X=10 THERE WAS AN LINE 30 ARITHMETIC OVERFLOW, WHY???
ALSO WITH X=9.3 -52911092.7046 WAS PRINTED
X=9.4 -572992901.8459 WAS PRINTED

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ALL OF THE ERRORS SHOW HERE IN THIS PROGRAM GOES WITH THE PROBLEM EXPLAINED EARLIER IN THE LETTER WITH THE EXPONENTIAL. THE MACHINE WILL NOT RAISE FRACTION NUMBERS PROPERLY AND IF THE NUMBER YOU ARE RAISING IT TO IS MORE THAN 2 DIGITS IT WILL ONLY USE 2. EXAMPLE:  $100^{102}$  WILL BE THE SAME AS  $100^2$ . IT SEEMS LIKE IT WOULD BE BEST TO PROGRAM AROUND THE EXPONENTIAL FUNCTION WITH A 'FOR' LOOP.

INCIDENTALLY, HOW DID YOU INCREASE THE LINE WIDTH ON THE APP TO DO THE NEWSLETTER??

'''RIGHT NOW WE ARE USING A LINE PROCESSOR PROGRAM THAT WE PURCHASED FROM ONE OF THE CLUB MEMBERS GLEN R JONES, TULSA, OKLA AND IT SETS UP THE LINE WIDTH OF 64 CHARACTERS FOR US. IF YOU WANT MORE INFO SEE THE WANT ADS FOR HIS ADDRESS AND YOU CAN SEND FOR MORE INFO.

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QUESTION FROM TOM DONAHUE

I WOULD LIKE TO SEE SOME DATA PROGRAMS AND SOME INFORMATION ON HOW TO USE THE IM-1 TO MAKE A PROGRAM WITH THE 'READ' & 'DATA' STATEMENTS.

'''RIGHT NOW I DON'T HAVE ANY PROGRAMS BUT HERE IS A SIMPLE ONE TO SHOW HOW TO USE THE STATMENTS.

```

10 DIM A$(12,10)
20 FOR I=1 TO 12
30 READ A$(I,1)
40 NEXT I
50 FOR I=1 TO 12: PRINT A$(I,1): NEXT I
60 END
100 DATA JANUARY,FEBRUARY,MARCH,APRIL,MAY,JUNE,JULY,AUGUST
110 DATA SEPTEMBER,OCTOBER,NOVEMBER,DECEMBER

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OK HERE WE GO THE STATEMENT OF THE MONTH WILL BE THE 'DIM'.....
THE WAY THE BOOKS TALK ABOUT IT IS EVEN HARD FOR SOMEBODY WHO
HAS BEEN PROGRAMMING FOR YEARS TO UNDERSTAND.

THE 'DIM' STATEMENT IS USED TO RESERVE PART OF MEMORY FOR THE
PROGRAMMER TO STORE DATA IN, WHEATHER IT IS NUMERIC DATA OR
ALPHA/NUMERIC (REFERED TO AS STRINGS). FIRST OFF YOU HAVE TO
UNDERSTAND THAT THERE IS A BIG DIFFERENCE BETWEEN 'DIM' FOR JUST
NUMERIC OR 'DIM' FOR STRINGS. WHEN THE 'DIM' IS USED FOR NUMERIC
DATA IT RESERVES ENOUGH MEMORY FOR EACH LOCATION IN THE 'DIM' TO
HOLD A MAX NUMERIC VALUE OF 999999999.9999. THE STRING
'DIM' HOLDS 1 CHARACTER IN EACH LOCATION.

EXAMPLE DIM A(3) WITH THIS YOU CAN STORE 4 NUMBERS WITH A
MAX VALUE OF 999999999.9999 IN EACH A(0), A(1), A(2), A(3)
EXAMPLE: DIM A(3,3) THIS WILL ALLOW YOU TO STORE 16 NUMERIC
VALUES AT A(0,0), A(0,1), A(0,2), A(0,3), A(1,0),.....ETC.....
TO HOLD A MAX VALUE OF 999999999.9999 EACH....

HERE COMES THE CONFUSION FOR EVERYBODY THE STRING...
I THINK THE BEST WAY IS WITH EXAMPLES.

NOTE THE % DENOTES THAT IT IS A 'DIM' FOR A STRING VARIABLE.

#1.. DIM A\$(10) WITH THIS YOU ARE ALLOWED TO STORE 11
CHARACTERS ONLY. A\$(0)="ABCDEFG1234" WOULD BE THE SAME AS THIS
A\$(0)="A", A\$(1)="B", A\$(2)="C",.....A\$(10)="4"

#2.. DIM A\$(2,3) WITH THIS YOU CAN STORE A TOTAL OF 9
CHARACTERS. IF A\$(0,1)="123" & A\$(1,1)="ABC" & A\$(2,1)="XYZ"
THEN A\$(2,3)="2" & A\$(1,2)="B" & A\$(0,1)="1", ETC

YOU WILL NOTE THAT IN EXAMPLE #2 FOR STRINGS THAT YOU CANNOT
SELECT THE FOLLOWING A\$(0,0) & A\$(1,0) & A\$(2,0) THIS IS JUST
A RESTRICTION IN THE 'BASIC INTERPRETER'.....

HEY I THINK I STRAINED SOMETHING!!

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# REM THIS PROGRAM WILL SHOW YOU HOW TO USE YOUR TAPE AS A TRUE DATA STORAGE SYSTEM.
1 # REM CALL(0)=0 REM THIS LINE SAVES THE VARIABLE STORAGE POINTER
2 POKE 4100,0:POKE 4101,0:REM THIS LINE SETS THE VARIABLE STORAGE POINTERS TO POINT TO ADDRESS 0000
3 DIM 24(255):POKE 4100,0:POKE 4101,0:REM THIS LINE WILL SET UP THE OUTPUT DIM AND THEN RESET VARIABLE STORAGE POINTERS "0"
ORIGINAL VALUE
10 DIM 0(431)
15 PRINT "PLACE TAPE ON DECK AND PRESS PLAY AND SOME TAPE IS POSITIONED PROPERLY, IT WOULD BE BEST TO USE LEADERLESS TAPE"
20 FOR J=1 TO 3:REM THIS SETS UP A LOOP TO ALLOW 3 BLOCKS TO BE WRITTEN ON TAPE
25 REM
30 REM
35 FOR I=0 TO 255 STEP 32:24(I)=SPK:INPUT 24(I):NEXT I
36 REM LINE 35 WILL BE THE INPUT ROUTINE, IT IS SET UP TO HAVE 8 32 CHARACTER LINES IN EACH BLOCK.
37 REM HERE WE GO TO SET UP LOW, HIGH, AND REM END POINTERS
40 CALL 24(4):CALL 24(5):REM HERE WE OUTPUT TO TAPE AND THEN TURN OFF MOTOR
50 GOTO 30:REM GO RESET THE REM END POINTER.
60 NEXT J
70 INPUT "PRESS PLAY, PRESS PLAY, THEN RETURN KEY",K
80 FOR J=1 TO 3:REM SET UP LOOP TO READ 3 BLOCKS OFF TAPE
90 GOTO 30:REM GO SET UP LOW, HIGH AND REM END
100 CALL 24(20):CALL 24(6):REM READ TAPE AND THEN STOP MOTOR

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CALL BOX

CALL BOX

CALL BOX

TO START WITH THIS TIME I NEED TO TRY AND EXPLAIN THE FUNCTION OF THE 'CALL' STATEMENT TO THE NEW MEMBERS. THE 'CALL' STATEMENT IS USED BY THE 'BASIC' PROGRAM TO EXECUTE MACHINE LANGUAGE PROGRAMS WHICH CAN BE WRITTEN BY THE PROGRAMMER OR BE PART OF THE 'BASIC INTERPRETER' OF THE MACHINE. THIS ALLOWS THE PROGRAM TO EXECUTE SOME THINGS FASTER THAN WHAT THE INTERPRETER WILL ALLOW AND ALSO DO SOME THINGS WHICH THE INTERPRETER WILL NOT DO AT ALL.

NUMBER 1 FOR TODAY IS A METHOD TO TURN OFF THE DISC MOTOR. I HAVE HAD SEVERAL CALLS AND LETTERS WANTING TO KNOW HOW AND I FINALLY FOUND THE SECRET.
POKE 26112,0

THIS WILL TURN OFF THE MOTOR AND RESET THE DISC CONTROLLER (FI-100) AT THE SAME TIME. IT WILL REMAIN OFF UNTIL YOU HIT IT WITH ANOTHER COMMAND.
I HAVE NOT HAD ANY PROBLEMS WITH IT SO LET ME KNOW IF ANY COME UP.

NUMBER 2 CHECK OUT THE PROGRAM I PUT IN THE LETTER THIS TIME, IT GOES ALONG WITH THE ONE LAST MONTH TO ALLOW USE OF THE TAPE FOR DATA STORAGE WITHOUT A 'CSAVE' AND 'CLOAD'.

CALL 34930 = THIS WILL CLEAR MEMORY FROM THE END OF YOUR PROGRAM TO THE END OF MEMORY. THIS AREA NORMALLY CONTAINS 'DIN' STATEMENT DATA.

CALL 34949 = THIS WILL CLEAR ALL OF MEMORY AND RESET THE PROGRAM POINTER AT \$A000 TO \$A002. IT IS JUST LIKE HITTING RESET AND THE 'EN' KEY.

MAINTENANCE HINTS

I'VE BEEN ASKED WHAT KIND OF MEMORY CHIPS WERE USED IN THE 'JUNE' ISSUE MEMORY EXPANSION. THE 16K MEMORY CHIP SOLD AT RADIO SHACK FOR THEIR COMPUTERS WILL WORK OK.

ANOTHER THING FOR THOSE THAT HAVE 'DISK' DRIVES. YOU MIGHT HAVE PROBLEMS RUNNING PROGRAMS FROM IT. THEY APPEAR TO LOAD BUT WILL NOT RUN FOR VARIOUS REASONS. I DON'T THINK THAT THE 'BASIC DOS' CHECKS FOR ERRORS WHEN LOADING SO IF YOU HAVE A BAD DISK DRIVE OR BAD FLOPPY DISK IT CAN CAUSE SOME STRANGE PROBLEMS. I THINK YOU MIGHT HAVE TO GET A DISK CLEANING PACK WHICH IS SOLD AT RADIO SHACK TO CLEAN THE HEAD TO CURE SOME OF THE PROBLEM.

HEY OUT THERE IN COMPUTER LAND
EXCUSE THE PASTE UP ON THE LETTER
CAUSE I HATE TO SEE BLANK AREAS
AND THIS IS THE ONLY WAY I CAN
FILL THEM UP. SO DON'T GET
CONFUSED IN THE PROGRAMS, WE HAD
TO CUT SOME OF THEM UP TO MAKE IT
ALL FIT!!!!!!!!!!!!!!!!!!!!

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1 REM HERE IS A PROGRAM SUBMITTED BY NOME RUSSELL
2 CALL 179A6
5 REM HUNT THE MUMPUIS
10 POKE 24578,54
15 DIM I(10)
30 PRINT "INSTRUCTIONS? (Y/N)"
40 INPUT I$
50 IF I$="Y" THEN 70
60 GOSUB 600
70 DIM S(20,2)
71 PRINT "JUST A MOMENT WHILE I CREATE A UNIVERSE IN MY BAY CHOPS.": PRINT : PRINT
80 FOR J=1 TO 20
90 FOR K=1 TO 3
100 READ S(J,K)
110 NEXT K: NEXT J
120 DATA 2,3,8,1,3,18,2,6,12,3,5,14,1,4,6
130 DATA 5,7,19,4,8,17,1,7,9,8,10,10,2,9,11
140 DATA 18,12,19,5,17,13,12,14,20,4,15,15,6,14,16
150 DATA 15,17,20,7,16,18,9,17,19,11,18,20,15,16,19
160 DIM L(16)
170 DIM M(16)
180 FOR Q=1 TO 6
190 L(Q)=INT (200 RND (Q)+1)
200 M(Q)=L(Q)
210 NEXT J
220 FOR Q=1 TO 6
230 FOR K=1 TO 6
240 IF Q=K THEN 330
250 IF L(Q)=L(K) THEN 240
260 NEXT K
270 NEXT J
280 DIM Q(10)
290 PRINT "HUNT THE MUMPUIS"
300 PRINT "-----"
310 GOSUB 1100
320 GOSUB 1200
330 IF Q=1 THEN 420
340 IF Q=2 THEN 510
350 GOSUB 1300
360 IF F=0 THEN 420
370 GOTO 530
380 GOSUB 1800
390 IF F=0 THEN 420
400 IF F=0 THEN 560
410 PRINT "DUMMY, YOU LOSE--MUMPU1 JUST LOVE YOU!"
420 GOTO 560
430 PRINT "O.K. HOTSHOT, THE MUMPU1 WILL GET THEIR REVENGE!"
440 PRINT "MUMPU1 SPIRITS WILL HAUNT YOU UNTIL THEN..."
450 FOR J=1 TO 6
460 L(J)=M(J)
470 NEXT J
480 PRINT "GAME SET UP? (Y-N)"
490 INPUT I$
500 IF I$="Y" THEN 540
510 GOTO 560
520 PRINT "WELCOME TO 'HUNT THE MUMPUIS'"
530 PRINT "THE MUMPU1 LIVES IN A CAVE OF TWENTY ROOMS. EACH ROOM HAS 3 TUNNELS LEADING INTO OTHER"
540 PRINT "ROOMS. LOOK AT A BUDECA- HEDRON TO SEE HOW THIS WORKS. IF YOU DON'T KNOW WHAT A"
550 PRINT "BUDECA-ROOM IS, ASK SOMEONE."
560 GOSUB 2200: PRINT : PRINT

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740 PRINT "HAZARDS"
750 PRINT "BOTTOMLESS PIT--THERE ARE TWO OF THESE. FALL INTO ONE AND YOU WILL LAND IN CHINA."
770 PRINT "SUPER BATS--TWO OTHER ROOMS HAVE SUPER BATS, IF YOU GO THEREA BAT GRABS YOU TO SOME OTHER ROOM AT RANDOM."
780 PRINT "WHICH MIGHT BE TROUBLESOME!"
800 GOSUB 2200: PRINT : PRINT
810 PRINT "MUMPUS"
820 PRINT "THE MUMPUS IS NOT TROTERED BY THE HAZARDS (HE HAS SUCKER FEET AND IS TOO BIG FOR A BAT TO LIFT.)"
840 PRINT "USUALLY HE IS ASLEEP, TWO THINGS WAKE HIM UP, YOUR ENTERING HIS ROOM OR SHOOTING AN ARROW."
850 PRINT "IF THE MUMPUS WAKES, HE MOVES 0%-75% ONE ROOM, OR STAYS WHEREHE IS (P+.25). AFTERTHAT, IF HEIS WAKRE YOU ARE"
860 PRINT "HE EATS YOU UP (AND YOU LOSE')."
890 GOSUB 2200
900 PRINT : PRINT "YOU"
910 PRINT "EACH TURN YOU MAY MOVE OR SHOOT A CROOKED ARROW. MOVING, YOU CAN GO ONE ROOM (THROUGH ONE TUNNEL."
920 PRINT "ARROWS, YOU HAVE FIVE ARROWS--WHEN YOU RUN OUT YOU LOSE. EACH ARROW CAN GO FROM ONE TO FIVE ROOMS."
930 PRINT : PRINT : GOSUB 2200
940 PRINT "YOU AIM BY TELLING THE COMPUTER THE ROOMS YOU WANT THE ARROW TO GO, IF THE ARROW CAN'T GO"
950 PRINT "THAT WAY (I.E. NO TUNNEL) IT MOVES AT RANDOM TO THE NEXT ROOM. IF THE ARROW HITS THE MUMPUS, YOU WIN"
960 PRINT "IF THE ARROW HITS YOU, YOU LOSE"
1000 GOSUB 2200: PRINT : PRINT "WARNING!"
1020 PRINT "WHEN YOU ARE ONE ROOM AWAY FROM THE MUMPUS OR A HAZARD THE COMPUTER SAYS:"
1030 PRINT "MUMPUS--" : SLEEP 8 MUMPUS"
1040 PRINT "BAT--" : SLEEP 8 BATS NEARBY"
1050 PRINT "PIT--" : SLEEP 8 I FEEL A DRAFT"
1070 PRINT : PRINT
1080 RETURN
1090 PRINT
1110 FOR J=2 TO 5
1120 FOR K=1 TO 3
1130 IF S(1,1),G(1,1,12) THEN 1220
1140 IF J=2 THEN 1170
1150 IF J=3 THEN 1190: IF J=4 THEN 1190
1160 IF J=5 THEN 1200: IF J=6 THEN 1200
1170 PRINT "I SNELL A MUMPUS"
1180 GOTO 1220
1190 PRINT "I FEEL A DRAFT"
1200 GOTO 1220
1210 PRINT "BATS NEARBY"
1220 NEXT K: NEXT J
1240 PRINT "YOU ARE IN ROOM "G(1,1)
1250 PRINT "TUNNELS LEAD TO "S(50,1),S(50,2),S(50,3)
1260 PRINT
1270 RETURN
1290 INPUT "SHOOT OR MOVE (S-M),":I
1300 IF I=K+1 THEN 1310
1320 I=1
1330 RETURN
1340 IF I=K+1 THEN 1390
1350 I=2
1360 RETURN
1370 REM ARROW ROUTINE
1380 I=0
1400 G=1
1410 INPUT "NUMBER OF ROOMS (1-5)":J
1420 IF J=1 THEN 1410: IF J=5 THEN 1410
1440 FOR K=1 TO J
1450 INPUT "ROOM #",P(10)
1470 IF K=2 THEN 1510
1480 IF P(10)>P(10-2) THEN 1510
1490 PRINT "ARROWS ARE NOT SUPER MAGIC--BE REALISTIC."
1500 GOTO 1450
1510 NEXT K
1590 PRINT "O.K., WHERE TO NOW"
1610 INPUT Q
1620 IF Q=1 THEN 1900: IF Q=2 THEN 1900
1630 FOR K=1 TO 3
1650 IF S(1,1),G(1,1,12) THEN 2010
1660 NEXT K
1670 IF Q=1 THEN 2010
1680 PRINT "ARE YOU FOR REAL, THAT'S NOT POSSIBLE!"
1690 GOTO 1900
2010 L(1)=Q
2030 IF R(1,1,12) THEN 2100
2040 PRINT "DUMMY, YOU BUMPED INTO A MUMPUS!"
2060 GOSUB 1810
2070 IF F=0 THEN 2100
2080 RETURN
2100 IF R(1,1,12) THEN IF G(1,14) THEN 2150
2110 PRINT "A PIT---CHINA HERE I COME....."
2120 F=-1
2130 RETURN
2150 IF G(1,1,12) THEN IF G(1,1,16) THEN 2190
2160 PRINT "SUPER BATS!!!! GOOD LUCK!!!"
2170 Q=INT (200*RND (0)+1)
2180 GOTO 2000
2190 RETURN
2200 FOR I=1 TO 5000000
2210 I=I/30011/30011
2220 NEXT I
2230 RETURN
2250 END

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115 0000 000: REM GO RESET REM END
120 PRINT 2000;20100;201100;201200;201300
125 REM LINE 120 IS USED TO PRINT THE ENTIRE BUFFER 20.
130 NEXT J
140 END
200 POKE 10000,0: POKE 10000,0: POKE 10000,0: POKE 10000,0
240 POKE 11000,0: POKE 11000,0
260 CALL 30000: RETURN
270 REM LINE 200 SETS LOW AND HIGH TO POINT TO PLACE WHERE WE STORED 20
280 REM LINE 240 SETS REM END TO SAME AS HIGH
290 REM LINE 260 TURNS ON MOTOR AND RETURNS TO PROGRAM
300 POKE 11000,220: POKE 11000,220: RETURN
310 REM LINE 300 SETS REM END BACK TO PROPER SETTINGS. ON BK MACHINES 10000 SHOULD BE 101.
400 REM WITH THIS PROGRAM YOU SHOULD BE ABLE TO WRITE YOUR OWN ROUTINES TO ALLOW STORAGE OF DATA
410 REM ON TAPE AND BE ABLE TO RETRIEVE IT. THE REASON I USED LOCATION 10000 TO STORE MY DATA WAS BECAUSE IT IS NOT USED
420 REM DURING NORMAL . I RECOMMEND THAT YOU USE AT LEAST THE 256 BYTE BLOCKS FOR DATA.
430 REM I HOPE THAT I HAVE PUT ENOUGH STATEMENTS EXPLAINING HOW TO DO IT AND WHAT EACH STATEMENT DOES. JUST GO SLOW WHEN TRYING
440 REM TO MODIFY THIS. LINES 1,2,3 ARE VERY CRITICAL AND SHOULD BE USED IN THE EXACT SAME WAY IN YOUR PROGRAMS.

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1 REM THIS PROGRAM WAS SUBMITTED BY FRANK NAGLE
2 REM *THIS PROGRAM IS USED TO DETERMINE THE MEAN AND STANDARD DEVIATION OF A SET OF VALUES FOR A SAMPLE.*
3 REM IF STANDARD DEVIATION IS REQUIRED FOR THE LOT, STATEMENT 1100 COULD BE CHANGED TO T=T/(N-1)
10 DIM A(100)
20 FOR K=1 TO 32: PRINT : NEXT
30 INPUT "NUMBER OF ENTRIES",N
40 NM=1
45 T=0
50 FOR J=0 TO N
60 PRINT "ENTRY #";J+1;
70 INPUT " ",A(J)
80 T=T+A(J)
90 NEXT J
100 T=T/(N+1)
105 T=0
110 FOR J=0 TO N
120 M2=M2+A(J)
125 M=M2/N
130 B=NM
140 T=T-M
150 NEXT J
160 T=T/N
165 T=T/100
170 F=T/2

```

EXAMPLES

A		
NUMBER OF ENTRIES?		10
ENTRY #	1	23
"	2	25
"	3	21
"	4	22
"	5	23
"	6	24
"	7	25
"	8	20
"	9	20
"	10	13

AVERAGE IS 22.4000
STD IS 4.0000

B		
NUMBER OF ENTRIES?		10
ENTRY #	1	.01
"	2	.2
"	3	.02
"	4	.03
"	5	.3
"	6	.000
"	7	.034
"	8	.02
"	9	.0001
"	10	.024

AVERAGE IS .0646
STD IS .1010

```

380 PRINT "THE MEAN IS",J
390 PRINT "THE STD DEVS",B
395 END
1220 M2=M2+A(J)

```


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